



REPLY TO  
ATTENTION OF:

**DEPARTMENT OF THE ARMY**  
**SAVANNAH DISTRICT, CORPS OF ENGINEERS**  
1104 North Westover BLVD, Unit 9  
ALBANY, GEORGIA 31707

MAY 29 2009

Regulatory Division  
200900567

**JOINT PUBLIC NOTICE**  
**Savannah District/State of Georgia**

The Savannah District has received an application for a Department of the Army Permit, pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344), as follows:

Application Number: 200900567

Applicant: Colonel Thomas Macdonald, Garrison Commander  
Fort Benning, Georgia 31905

Location of Proposed Work: The project area is located along both sides of Buena Vista Road in the area where it intersects with 2<sup>nd</sup> Division Road and Lorraine Road, on the northwestern portion of Fort Benning. Coordinates for the center of the maneuver area are Latitude 32.441715° and Longitude 84.782236°.

Description of Work Subject to the Jurisdiction of the US Army Corps of Engineers: This project (69741) proposes to impact 15.94 acres of wetlands and 2,150.5 linear feet of stream for the construction and upgrade of training area infrastructure at the 4,859-acre OSUT Maneuver Area for purposes of training military personnel. Primary facilities include new training area roads/tank trails, existing training area roads repair, culverted and low water crossings, traffic signage, field training/staging area, and turning pads. New training tank trails and existing training area roads to be repaired total approximately 37.9-miles. This project is included in the maneuver Center of Excellence Environmental Impact Statement. The project area is located along both sides of Buena Vista Road in the area where it intersects with 2<sup>nd</sup> Division Road and Lorraine Road, on the northwestern portion of the military installation (Figure 1). Coordinates for the center of the maneuver area are Latitude 32.441715° and Longitude 84.782236°.

**Mitigation Plan**

Fort Benning is proposing to mitigate these impacts by purchasing 87.5 wetland credits and 5,457.8 stream credits from the Kolomoki Mitigation Bank.

## BACKGROUND

This Joint Public Notice announces a request for authorizations from both the US Army Corps of Engineers and the State of Georgia. The applicant's proposed work may also require local governmental approval.

## STATE OF GEORGIA

Water Quality Certification: The Georgia Department of Natural Resources, Environmental Protection Division, intends to certify this project at the end of 30 days in accordance with the provisions of Section 401 of the Clean Water Act, which is required by an applicant for a Federal Permit to conduct an activity in, on, or adjacent to the waters of the State of Georgia. Copies of the application and supporting documents relative to a specific application will be available for review and copying at the office of the Georgia Department of Natural Resources, Environmental Protection Division, Water Protection Branch, 4220 International Parkway, Suite 101, Atlanta, Georgia 30354, during regular office hours. A copier machine is available for public use at a charge of 25 cents per page. Any person who desires to comment, object, or request a public hearing relative to State Water Quality Certification must do so within 30 days of the State's receipt of application in writing and state the reasons or basis of objections or request for a hearing. The application can also be seen in the Savannah District US Army Corps of Engineers, Albany Field Office, 1104 N. Westover Blvd, Unit 9, Albany, Georgia.

## US ARMY CORPS OF ENGINEERS

The Savannah District must consider the purpose and the impacts of the applicant's proposed work, prior to a decision on issuance of a Department of the Army Permit.

Cultural Resources Assessment: The US Army Infantry Center, Fort Benning is the lead federal agency for this proposed action. Historic and Cultural Resources Surveys and Assessments were included in an MCOE EIS that is currently being performed by Fort Benning. As soon as the assessments are completed, a copy of the results will be forwarded to the appropriate offices for review. Fort Benning will meet all lead federal agency responsibilities pursuant to Section 106 of the National Historic Preservation Act, prior to any work occurring in waters of the US subject to the jurisdiction of the USACE.

Endangered Species: The US Army Infantry Center, Fort Benning is the lead federal agency for this proposed action. Threatened and Endangered Species Assessments were included in an MCOE EIS that is currently being performed by Fort Benning. As soon as the surveys and assessments are completed, a copy of the results will be forwarded to the appropriate offices for review. Fort Benning will meet all lead federal agency responsibilities pursuant to Section 7 of the Endangered Species Act, prior to any work occurring in waters of the US subject to the jurisdiction of the USACE.



Public Interest Review: The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and in general, the needs and welfare of the people.

Consideration of Public Comments: The US Army Corps of Engineers is soliciting comments from the public; federal, state, and local agencies and officials; Native American Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the US Army Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Application of Section 404(b) (1) Guidelines: Project Purpose and need: Fort Benning, located approximately 80 miles southwest of Atlanta, is the home of the United States Army Infantry Center, 3rd Brigade 3rd Infantry Division, and various non-divisional and tenant units. The relocation of the USA Armor Center from Fort Knox, KY to Fort Benning will result in the stationing of approximately 14,000 additional personnel at the installation (including students). A majority of the facilities required for the Armor Center will be built at Harmony Church. New utility distribution systems and roadway upgrade are required to support the required facilities. Training area roadway improvements are required to provide safe and secure access into Fort Benning's training areas. Access to and within four major training maneuver areas is required to support mission training: OSUT Maneuver Training Area, Northern Maneuver Training Area, Good Hope Maneuver Training Area, and Southeastern Maneuver Training Area.

The objective of this project is to construct new and upgrade existing training area infrastructure roads and drainage to support increased access and training use. The current situation of the existing training roads of the OSUT Maneuver Area does not support the increased trafficability and training throughput associated with tracked vehicle use. If this project is not provided, mission support to Fort Benning will be reduced. Safe and efficient access to existing training land will be limited.

**Alternative Site Evaluation:** With regard to the project site location, Fort Benning is limited in spaces that can accommodate a training area of this size. A search was conducted for alternative sites and only one available site was found that could accommodate this project. Because of the network of existing roads throughout the OSUT Training area, it allowed for the proposed tank trails to be placed on existing trails, therefore, minimizing the need for completely new road construction and reducing overall jurisdictional wetland/stream impacts. This area provided the best and only option for this training facility. Therefore, no other more feasible alternative sites exist on this military installation for this project.

**Avoidance and Minimization:** This project site has numerous wetlands and streams throughout. It also has a number of existing roads and crossings. The existing roads and crossings would be used as much as possible. Some trails were relocated to avoid wetland areas. During the design process, the foot print of the project was adjusted and reduced to avoid wetland impacts. Approximately 9 acres of wetlands were avoided.

**Public Hearing:** Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application for a Department of the Army Permit. Requests for public hearings shall state, with particularity, the reasons for requesting a public hearing. The decision whether to hold a public hearing is at the discretion of the District Engineer, or his designated appointee, based on the need for additional substantial information necessary in evaluating the proposed project.

**Comment Period:** Anyone wishing to comment on this application for a Department of the Army Permit should submit comments in writing to the Commander, US Army Corps of Engineers, Savannah District, Albany Field Office, 1104 N. Westover Blvd, Unit 9, Albany, Georgia. 31707, no later than 30 days from the date of this notice. Please refer to the applicant's name and the application number in your comments.

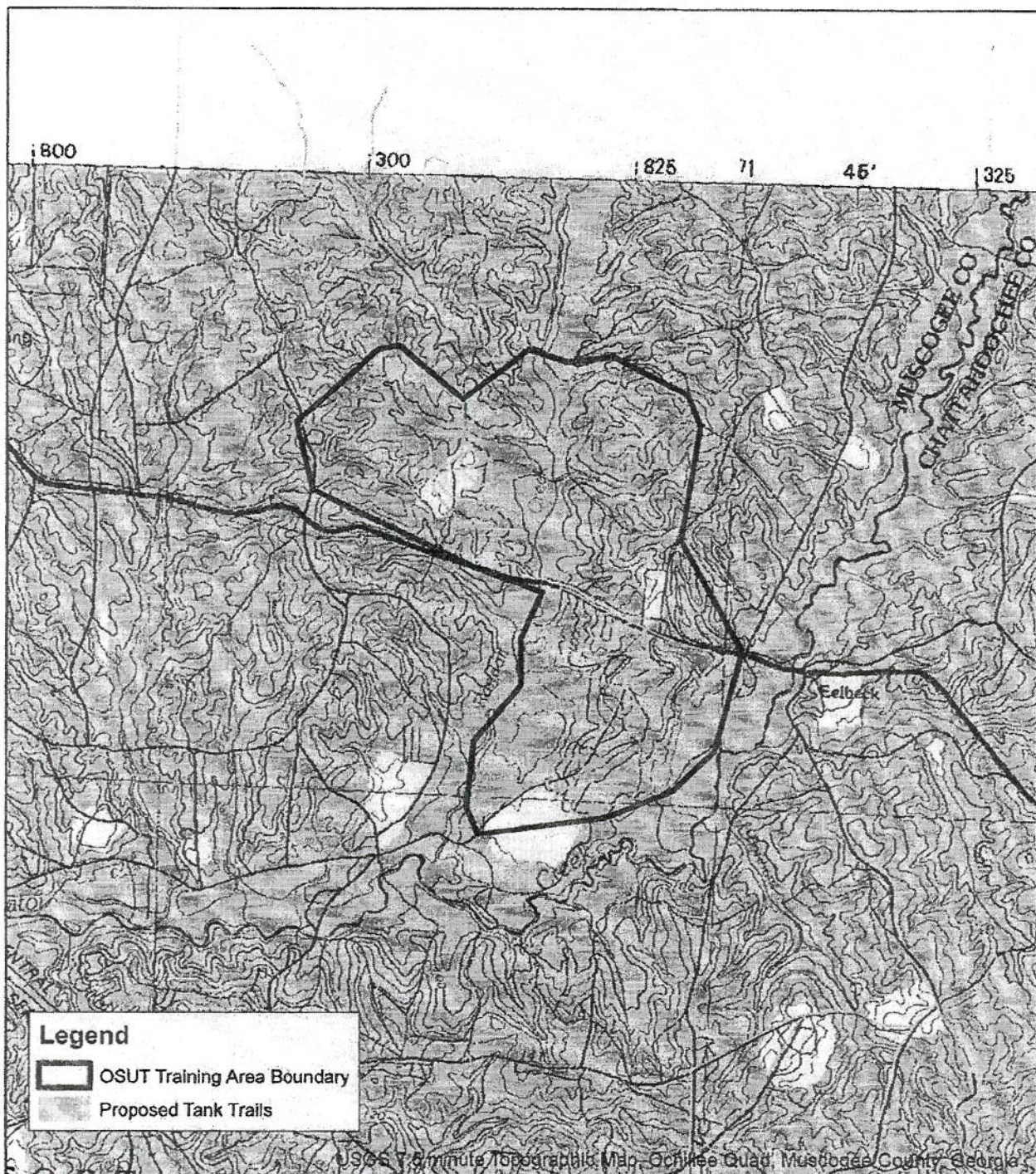
If you have any further questions concerning this matter, please contact Thomas Fischer, at (229) 430-8566.

Enclosures









**OSUT Training Area Infrastructure Project (69741)**  
**Fort Benning**  
**Muscogee County, Georgia**

0 3,000 6,000 12,000 Feet



Prepared For:  
 U.S. Army at Fort Benning

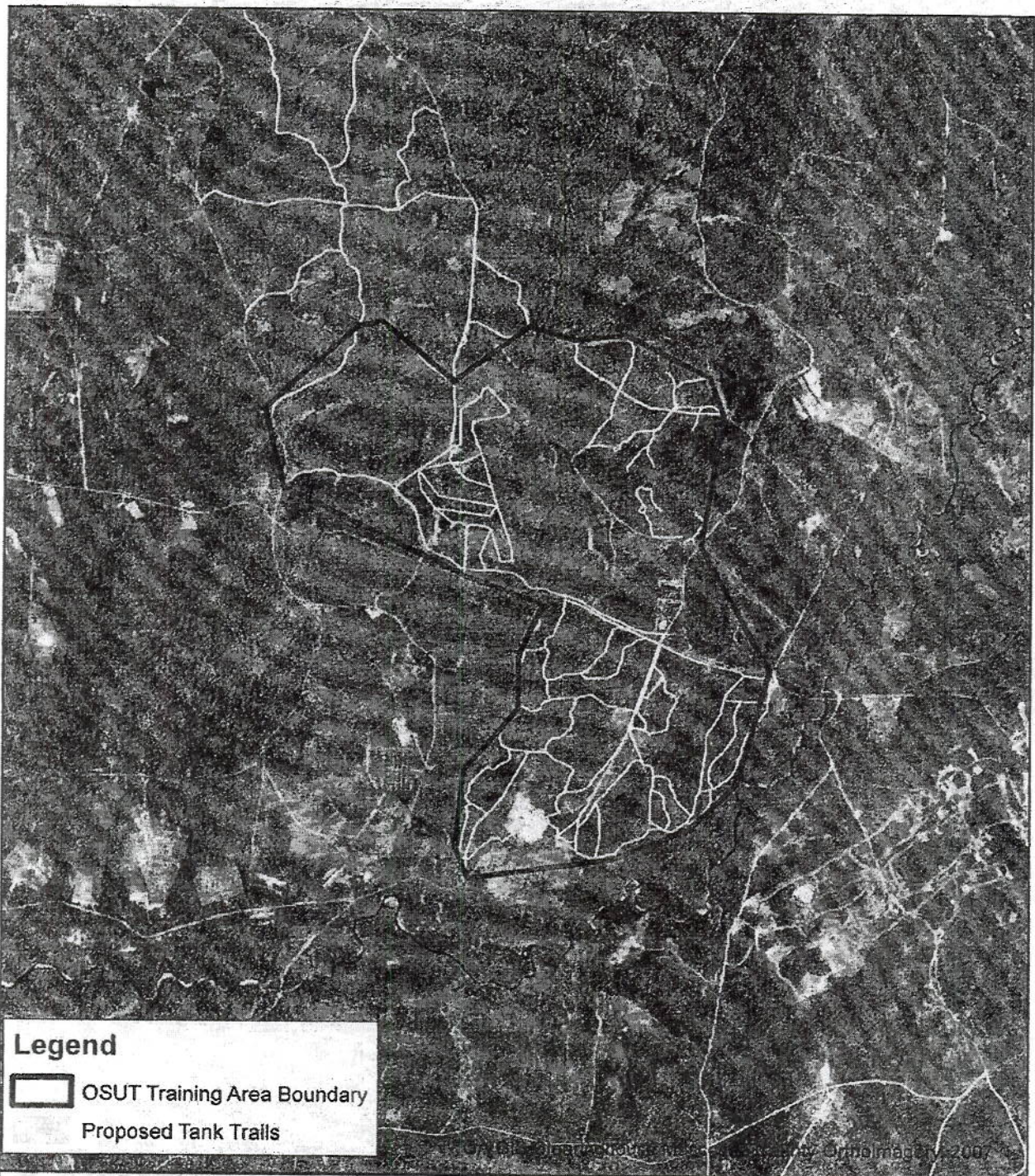
**WILDLANDS**

**Figure 2**  
**Topographic Map**  
**April 2009**



1305 Lakes Parkway, Suite 129  
 Lawrenceville, Georgia, 30043  
 Phone 770.682.9731  
 Fax 770.682.6164  
 www.wildlandsinc.com

Wildlands Project  
 No. 2009-20





### Legend

-  OSUT Training Area Boundary
-  Proposed Tank Trails

OSUT Training Area Infrastructure Project (69741)  
Fort Benning  
Muscogee County, Georgia

0 0.5 1 2 Miles



Prepared for:  
U.S. Army at Fort Benning

Figure 3  
Location Map  
April 2009



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Wildlands Project  
No: 25205-20



**Jurisdictional Wetland/Stream Impact Descriptions  
OSUT Training Area Infrastructure Project (69741)**

**Area: 1**

Location: Northwestern portion of northern half of range (map 4)

Impacts: Stream 81 (LF) Wetland 0.280 (acres)

Type of Impact: All wetlands within the corridor will be filled. No existing pipe, all streams within the corridor will be piped

**Area: 2**

Location: Northwestern portion of northern half of range (map 4)

Impacts: Stream 0 (LF) Wetland 0.05 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 3**

Location: Northwestern portion of northern half of range (map 4)

Impacts: Stream 0 (LF) Wetland 0.37 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 4**

Location: Northwestern portion of northern half of range (map 4)

Impacts: Stream 0 (LF) Wetland 0.021 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 5**

Location: Middle section of northern half of the range (map 5)

Impacts: Stream 27 (LF) Wetland 0.205 (acres)

Type of Impact: A stream of 87 LF is present on the corridor and an existing pipe of 40 LF.. USACE allowance for 20 LF yields an impact total of 25 LF

**Area: 6**

Location: Middle section of northern half of the range (map 5)

Impacts: Stream 91 (LF) Wetland 0.51 (acres)

Type of Impact: All wetlands within the corridor will be filled. No existing pipe, all streams within the corridor will be piped

**Area: 7**

Location: Middle section of northern half of the range (map 5)

Impacts: Stream 85 (LF) Wetland 0.53 (acres)

Type of Impact: All wetlands within the corridor will be filled. No existing pipe, all streams within the corridor will be piped



**Area: 8**

Location: Middle section of northern half of the range (map 5)

Impacts: Stream 0 (LF) Wetland 0.3 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 9**

Location: Middle section of northern half of the range (map 5)

Impacts: Stream 0 (LF) Wetland 0.27 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 10**

Location: Southern portion of northern half of the range (map 6)

Impacts: Stream 0 (LF) Wetland 0.46 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 11**

Location: Southern portion of northern half of the range (map 6)

Impacts: Stream 86 (LF) Wetland 0.42 (acres)

Type of Impact: All wetlands within the corridor will be filled. No existing pipe, all streams within the corridor will be piped.

**Area: 12**

Location: Southern portion of northern half of the range (map 6)

Impacts: Stream 0 (LF) Wetland 0.27 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 13**

Location: Southern portion of northern half of the range (map 6)

Impacts: Stream 0 (LF) Wetland 0.24 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 14**

Location: Southern portion of northern half of the range (map 6)

Impacts: Stream 80 (LF) Wetland 0.17 (acres)

Type of Impact: All wetlands within the corridor will be filled. No existing pipe, all streams within the corridor will be piped.

**Area: 15**

Location: Southern portion of northern half of the range (map 6)

Impacts: Stream 0 (LF) Wetland 0.33 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 16**

Location: Southern portion of northern half of the range (map 6)

Impacts: Stream 0 (LF) Wetland 0.056 (acres)

Type of Impact: All wetlands within the corridor will be filled.



**Area: 17**

Location: Southern portion of northern half of the range (map 6)

Impacts: Stream 0 (LF) Wetland 0.022 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 18**

Location: Northwest quarter of the southern half of the range (map 8)

Impacts: Stream 86 (LF) Wetland 0.031 (acres)

Type of Impact: All wetlands within the corridor will be filled. No existing pipe, all streams within the corridor will be piped.

**Area: 19**

Location: Northwest quarter of the southern half of the range (map 8)

Impacts: Stream 0 (LF) Wetland 0.069 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 20**

Location: Northeast quarter of the southern half of the range (map 10)

Impacts: Stream 104 (LF) Wetland 0.42 (acres)

Type of Impact: All wetlands within the corridor will be filled. A stream of 184 LF is present on the corridor and an existing pipe of 60 LF. USACE allowance for 20 LF yields an impact total of 104 LF.

**Area: 21**

Location: Northwest quarter of the southern half of the range (map 8)

Impacts: Stream 0 (LF) Wetland 0.15 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 22**

Location: Northwest quarter of the southern half of the range (map 8)

Impacts: Stream 0 (LF) Wetland 0.09 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 23**

Location: Northwest quarter of the southern half of the range (map 8)

Impacts: Stream 101 (LF) Wetland 1.6 (acres)

Type of Impact: All wetlands within the corridor will be filled. No existing pipe, all streams within the corridor will be piped.

**Area: 24**

Location: Northwest quarter of the southern half of the range (map 8)

Impacts: Stream 8 (LF) Wetland 0.37 (acres) Ephemeral 0.016 (acres)

Type of Impact: Ephemeral impacts present. All wetlands within the corridor will be filled. No existing pipe, all streams within the corridor will be piped



**Area: 25**

Location: Eastern portion of northern half of the range (map 7)

Impacts: Stream 116 (LF) Wetland 0.10 (acres)

Type of Impact: All wetlands within the corridor will be filled. No existing pipe, all streams within the corridor will be piped

**Area: 26**

Location: Eastern portion of northern half of the range (map 7)

Impacts: Stream 80 (LF) Wetland 0.76 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 27**

Location: Eastern portion of northern half of the range (map 7)

Impacts: Stream 0 (LF) Wetland 0.16 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 28**

Location: Eastern portion of northern half of the range (map 7)

Impacts: Stream 0 (LF) Wetland 0.1 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 29**

Location: Southwest quarter of the southern half of the range (map 9)

Impacts: Stream 0 (LF) Wetland 0.3 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 30**

Location: Southwest quarter of the southern half of the range (map 9)

Impacts: Stream 41 (LF) Wetland 0.19 (acres)

Type of Impact: All wetlands within the corridor will be filled. A stream of 81 LF is present on the corridor and an existing pipe of 20 LF. USACE allowance for 20 LF yields an impact total of 41 LF.

**Area: 31**

Location: Southwest quarter of the southern half of the range (map 9)

Impacts: Stream 81 (LF) Wetland 0 (acres)

Type of Impact: No existing pipe, all streams within the corridor will be piped

**Area: 32**

Location: Southwest quarter of the southern half of the range (map 9)

Impacts: Stream 0 (LF) Wetland 0.329 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 33**

Location: Northwest quarter of the southern half of the range (map 8)

Impacts: Stream 67 (LF) Wetland 0.308 (acres) Ephemeral 0.024 (acres)



Type of Impact: Ephemeral impacts present. All wetlands within the corridor will be filled. A stream of 107 LF is present on the corridor and an existing pipe of 20 LF. USACE allowance for 20 LF yields an impact total of 67 LF

**Area: 34**

Location: Northwest quarter of the southern half of the range (map 8)

Impacts: Stream 127 (LF) Wetland 0 (acres)

Type of Impact: No existing pipe, all streams within the corridor will be piped

**Area: 34A**

Location: Northwest quarter of the southern half of the range (map 8)

Impacts: Stream 138 (LF) Wetland 0 (acres)

Type of Impact: A stream of 178 LF is present on the corridor and an existing pipe of 20 LF. USACE allowance for 20 LF yields an impact total of 138 LF

**Area: 34B**

Location: Northwest quarter of the southern half of the range (map 8)

Impacts: Stream 100 (LF) Wetland 0 (acres)

Type of Impact: A stream of 140 LF is present on the corridor and an existing pipe of 20 LF. USACE allowance for 20 LF yields an impact total of 100 LF

**Area: 35**

Location: Northwest quarter of the southern half of the range (map 8)

Impacts: Stream 0 (LF) Wetland 0.09 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 36**

Location: Northwest quarter of the southern half of the range (map 8)

Impacts: Stream 0 (LF) Wetland 0.12 (acres)

Type of Impact: All wetlands within the corridor will be filled.

**Area: 37**

Location: Southwest quarter of the southern half of the range (map 9)

Impacts: Stream 101 (LF) Wetland 0.245 (acres)

Type of Impact: All wetlands within the corridor will be filled. No existing pipe, all streams within the corridor will be piped

**Area: 38**

Location: Southwest quarter of the southern half of the range (map 9)

Impacts: Stream 0 (LF) Wetland 0.240 (acres)

Type of Impact: All wetlands within the corridor will be filled

**Area: 39**

Location: Southwest quarter of the southern half of the range (map 9)

Impacts: Stream 0 (LF) Wetland 0.21 (acres)

Type of Impact: All wetlands within the corridor will be filled



**Area: 40**

Location: Southwest quarter of the southern half of the range (map 9)

Impacts: Stream 0 (LF) Wetland 0.15 (acres)

Type of Impact: All wetlands within the corridor will be filled

**Area: 41**

Location: Southeast quarter of the southern half of the range (map 11)

Impacts: Stream 90 (LF) Wetland 0.12 (acres)

Type of Impact: All wetlands within the corridor will be filled. No existing pipe, all streams within the corridor will be piped.

**Area: 42**

Location: Southeast quarter of the southern half of the range (map 11)

Impacts: Stream 82 (LF) Wetland 0 (acres)

Type of Impact: A stream of 142 LF is present on the corridor and an existing pipe of 40 LF. USACE allowance for 20 LF yields an impact total of 82 LF

**Area: 43**

Location: Southeast quarter of the southern half of the range (map 11)

Impacts: Stream 333 (LF) Wetland 0.027 (acres) Ephemeral 0.007 (acres)

Type of Impact: A stream of 393 LF is present on the corridor and an existing pipe of 40 LF. USACE allowance for 20 LF yields an impact total of 333 LF

**Area: 43A**

Location: Southeast quarter of the southern half of the range (map 11)

Impacts: Stream 0 (LF) Wetland 0 (acres) Ephemeral 0.066 (acres)

Type of Impact: Ephemeral impacts present. All wetlands within the corridor will be filled

**Area: 44**

Location: Southeast quarter of the southern half of the range (map 11)

Impacts: Stream 0 (LF) Wetland 0 (acres) Ephemeral 0.052 (acres)

Type of Impact: Ephemeral impacts present. All wetlands within the corridor will be filled

**Area: 45**

Location: Southeast quarter of the southern half of the range (map 11)

Impacts: Stream 0 (LF) Wetland 0.6 (acres)

Type of Impact: All wetlands within the corridor will be filled

**Area: 46**

Location: Northeast quarter of the southern half of the range (map 10)

Impacts: Stream 0 (LF) Wetland 1.75 (acres)

Type of Impact: All wetlands within the corridor will be filled

**Area: 47**

Location: Northeast quarter of the southern half of the range (map 10)

Impacts: Stream 0 (LF) Wetland 0.058 (acres)

Type of Impact: All wetlands within the corridor will be filled

**Area: 48**

Location: Northeast quarter of the southern half of the range (map 10)

Impacts: Stream 0 (LF) Wetland 1.048 (acres)

Type of Impact: All wetlands within the corridor will be filled

**Area: 49**

Location: Northeast quarter of the southern half of the range (map 10)

Impacts: Stream 88 (LF) Wetland 0.078 (acres) Ephemeral 0.024 (acres)

Type of Impact: All wetlands within the corridor will be filled

**Area: 49A**

Location: Northeast quarter of the southern half of the range (map 10)

Impacts: Stream 0 (LF) Wetland 0.153 (acres) Ephemeral 0.026 (acres)

Type of Impact: Ephemeral impacts present. All wetlands within the corridor will be filled

**Area: 50**

Location: Northeast quarter of the southern half of the range (map 10)

Impacts: Stream 0 (LF) Wetland 1.4 (acres)

Type of Impact: All wetlands within the corridor will be filled

**Area: 51**

Location: Northeast quarter of the southern half of the range (map 10)

Impacts: Stream 45.5 (LF) Wetland 0 (acres)

Type of Impact: A stream of 106 LF is present on the corridor and an existing pipe of 40.5 LF. USACE allowance for 20 LF yields an impact total of 45.5 LF

**Area: 52**

Location: Northwest quarter of the southern half of the range (map 8)

Impacts: Stream 0 (LF) Wetland 0.053 (acres)

Type of Impact: All wetlands within the corridor will be filled

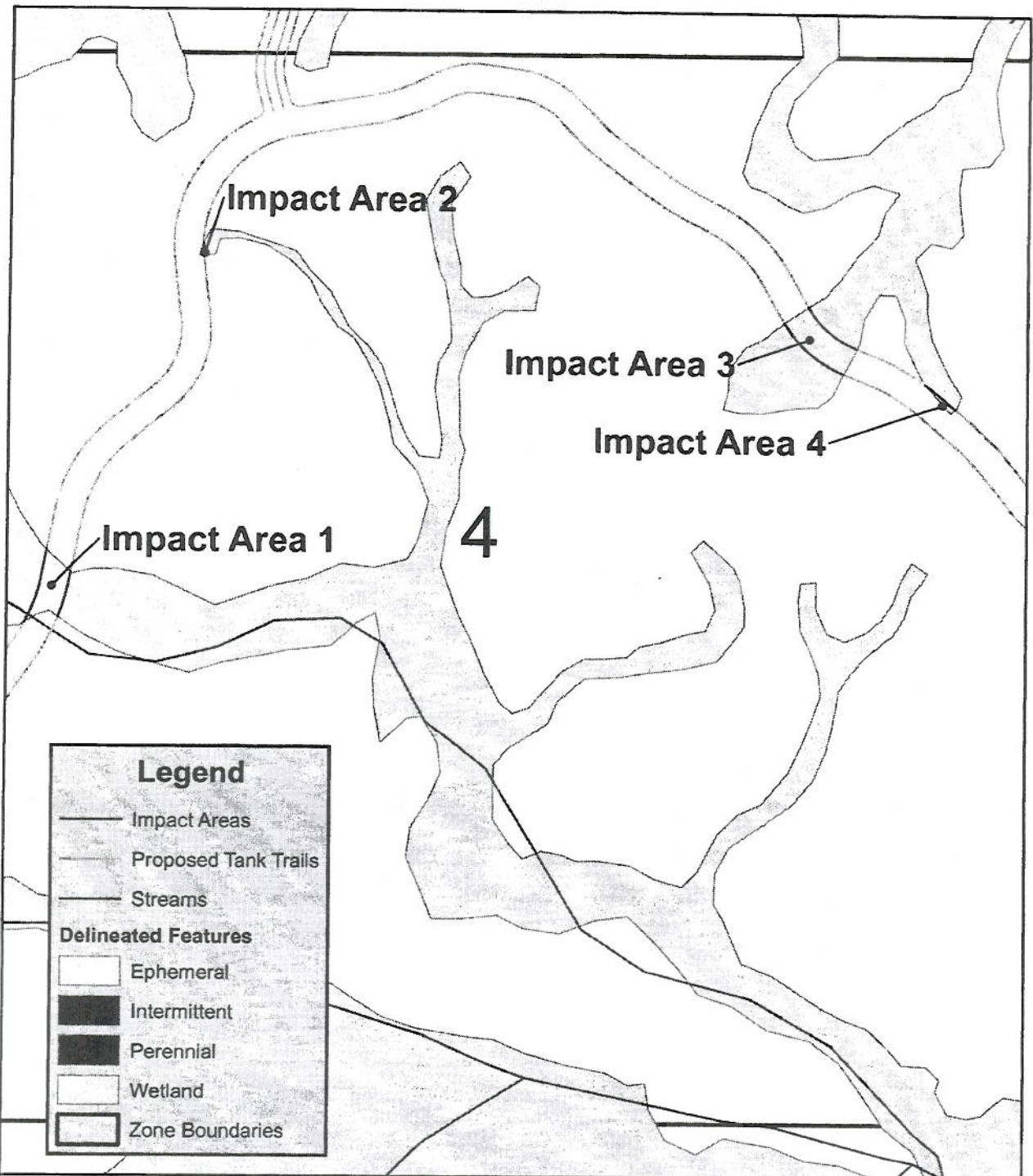
**Area: 53**

Location: Southeastern quarter of the southern half of the range (map 11)

Impacts: Stream 0 (LF) Wetland 0.028 (acres)

Type of Impact: All wetlands within the corridor will be filled





**OSUT Training Area**  
**Jurisdictional Wetland/Stream Impact Assessment**  
**Fort Benning, GA**

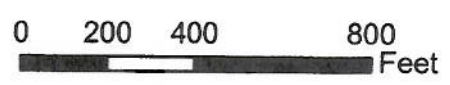


Prepared For:  
 United States Army at Fort Benning

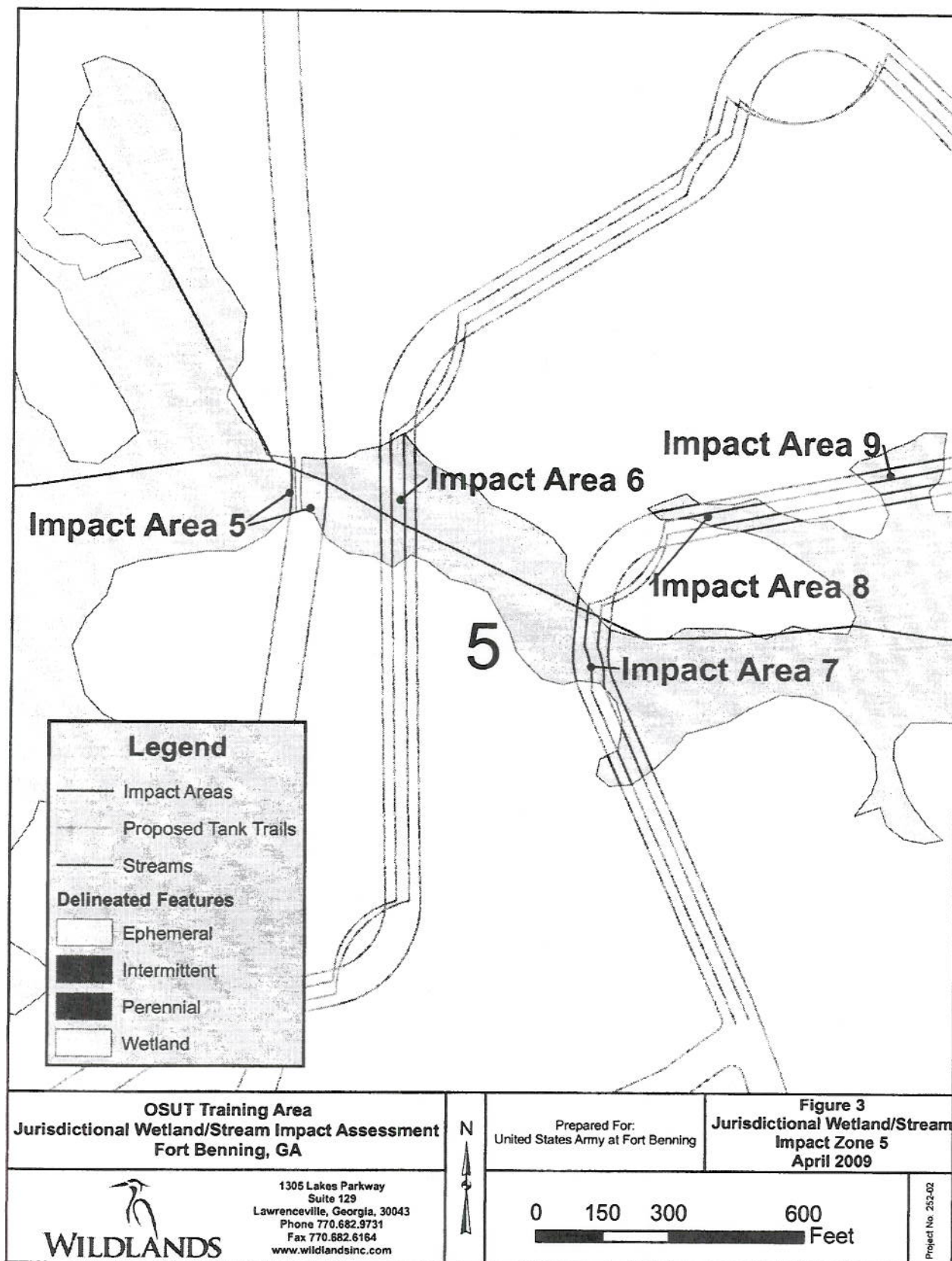
**Figure 2**  
**Jurisdictional Wetland/Stream**  
**Impact Zone 4**  
**April 2009**



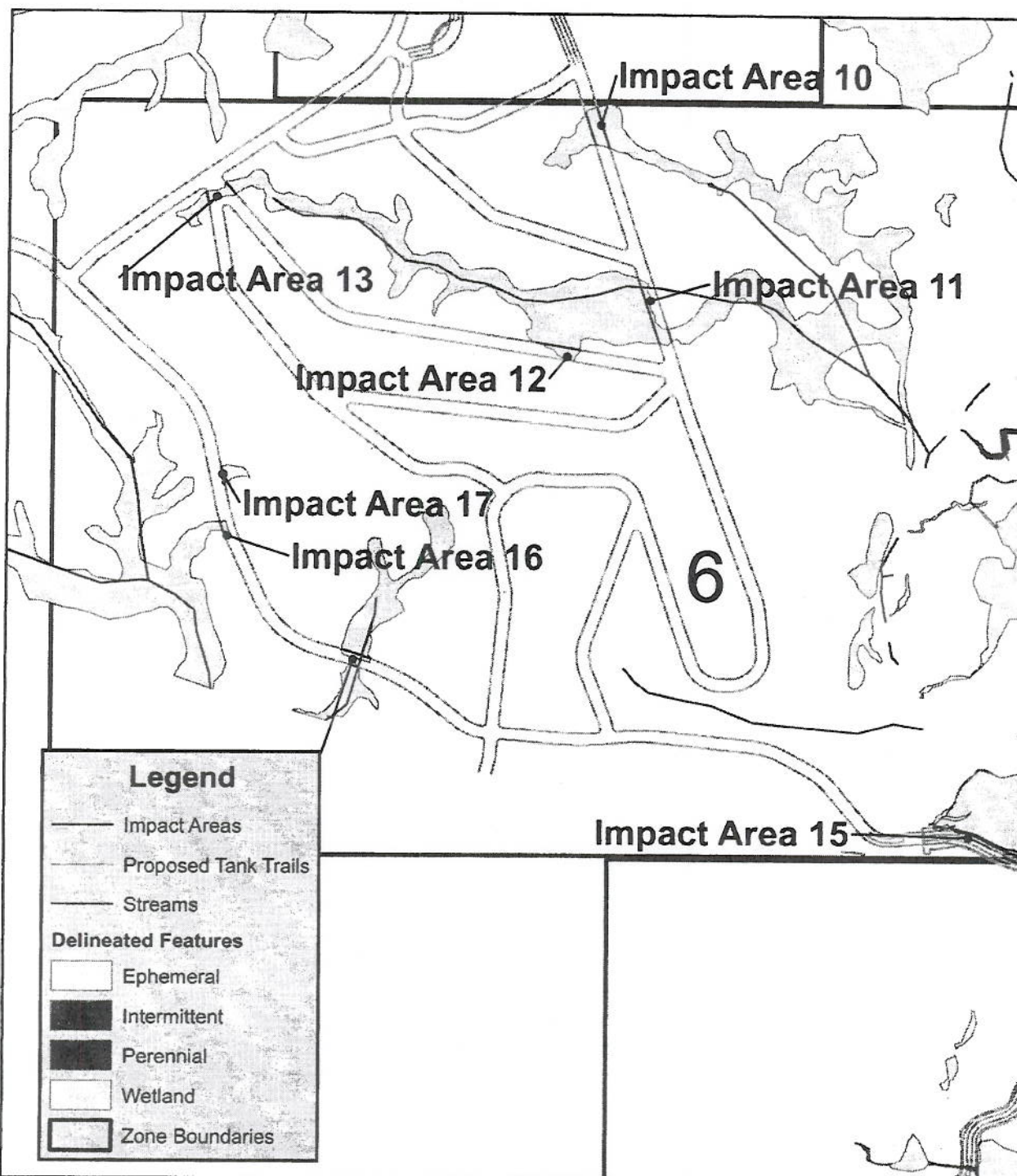
1305 Lakes Parkway  
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 Lawrenceville, Georgia, 30043  
 Phone 770.682.9731  
 Fax 770.682.6164  
 www.wildlandsinc.com



Project No: 252-02







**OSUT Training Area**  
**Jurisdictional Wetland/Stream Impact Assessment**  
**Fort Benning, GA**

Prepared For:  
 United States Army at Fort Benning

**Figure 4**  
**Jurisdictional Wetland/Stream**  
**Impact Zone 6**  
**April 2009**

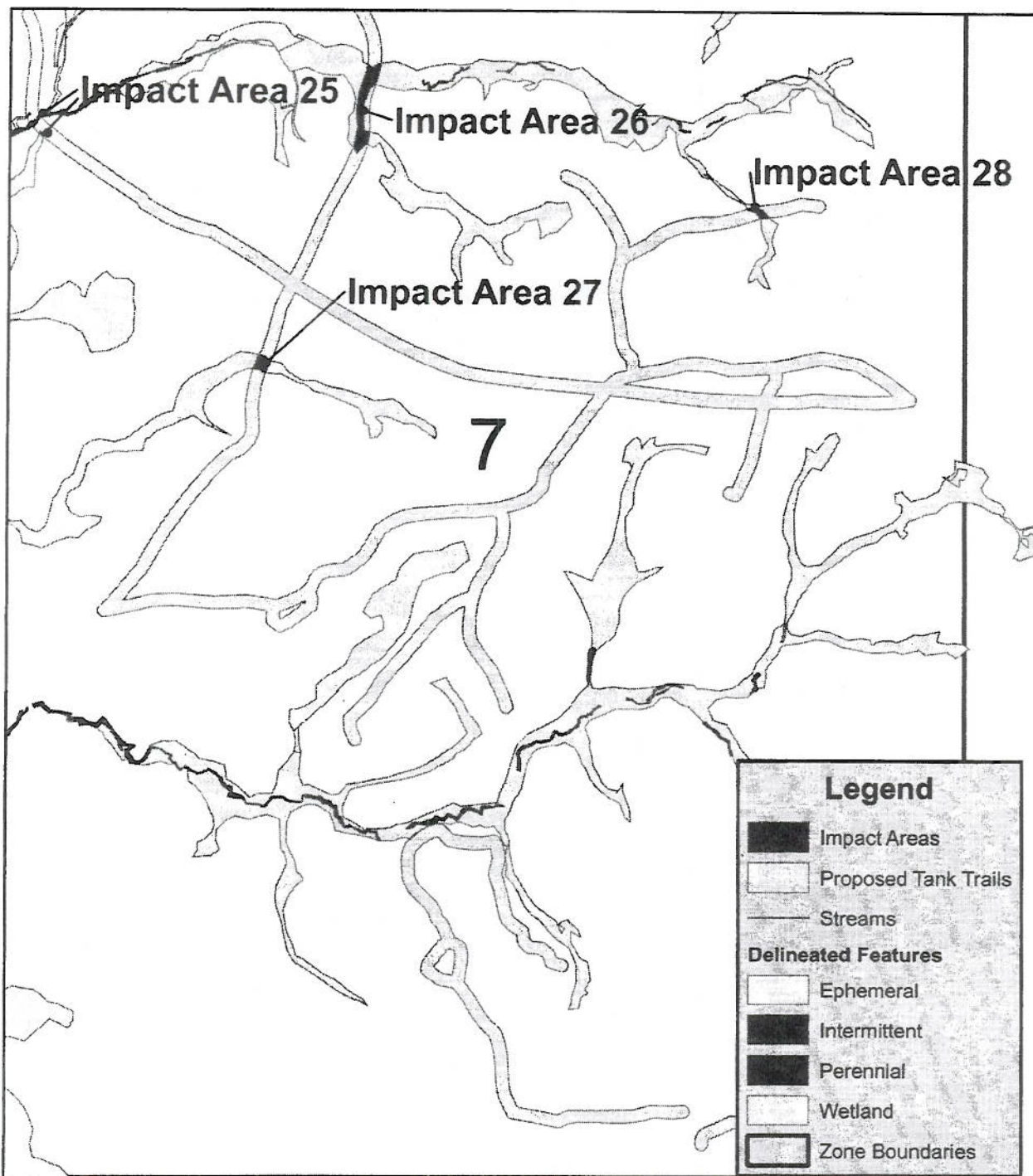


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0 450 900 1,800  
 Feet

Project No. 252-02



OSUT Training Area  
Jurisdictional Wetland/Stream Impact Assessment  
Fort Benning, GA



Prepared For:  
United States Army at Fort Benning

**Figure 5**  
Jurisdictional Wetland/Stream  
Impact Zone 7  
April 2009

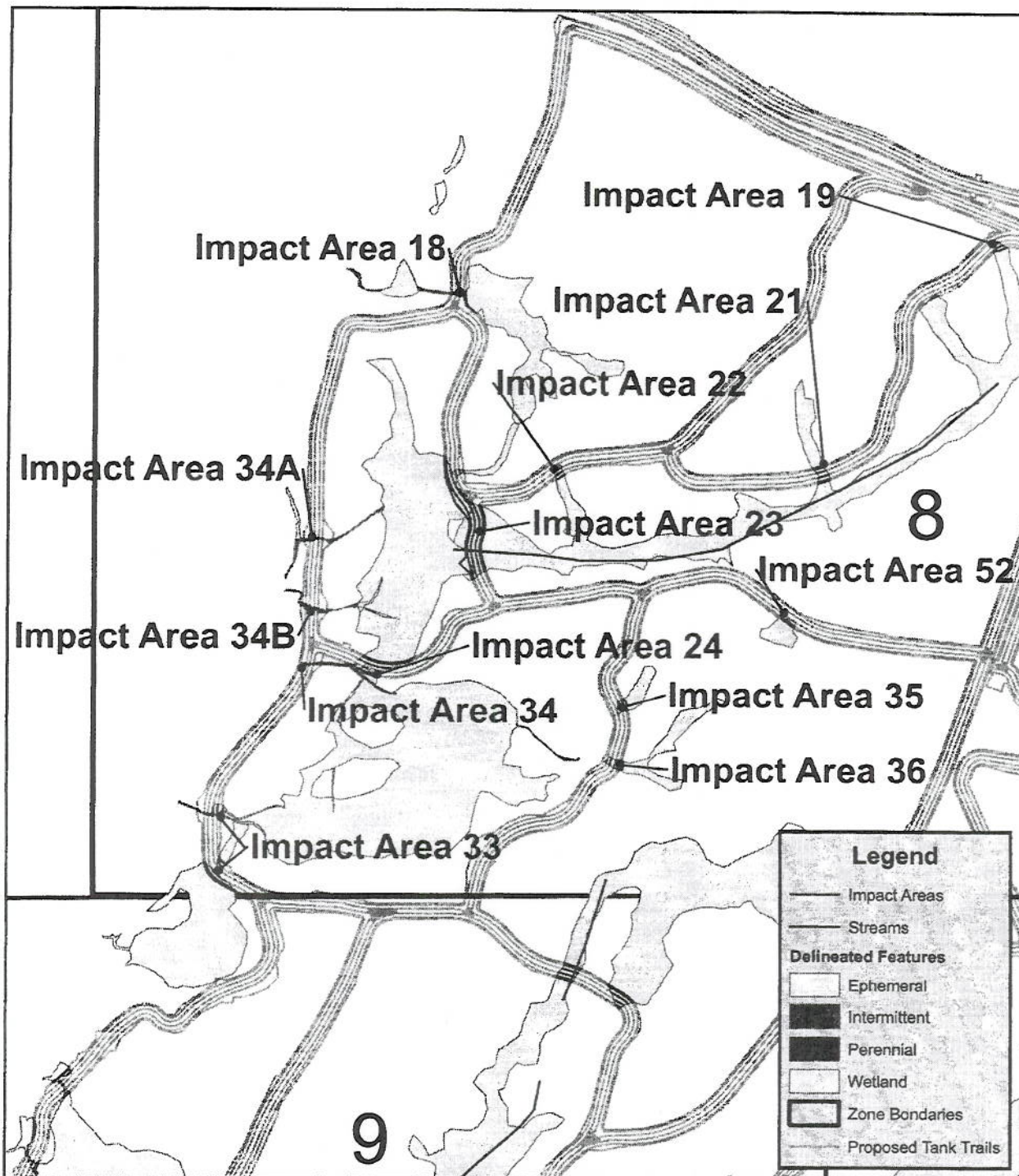


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Project No. 252-02





OSUT Training Area  
Jurisdictional Wetland/Stream Impact Assessment  
Fort Benning, GA



Prepared For:  
United States Army at Fort Benning

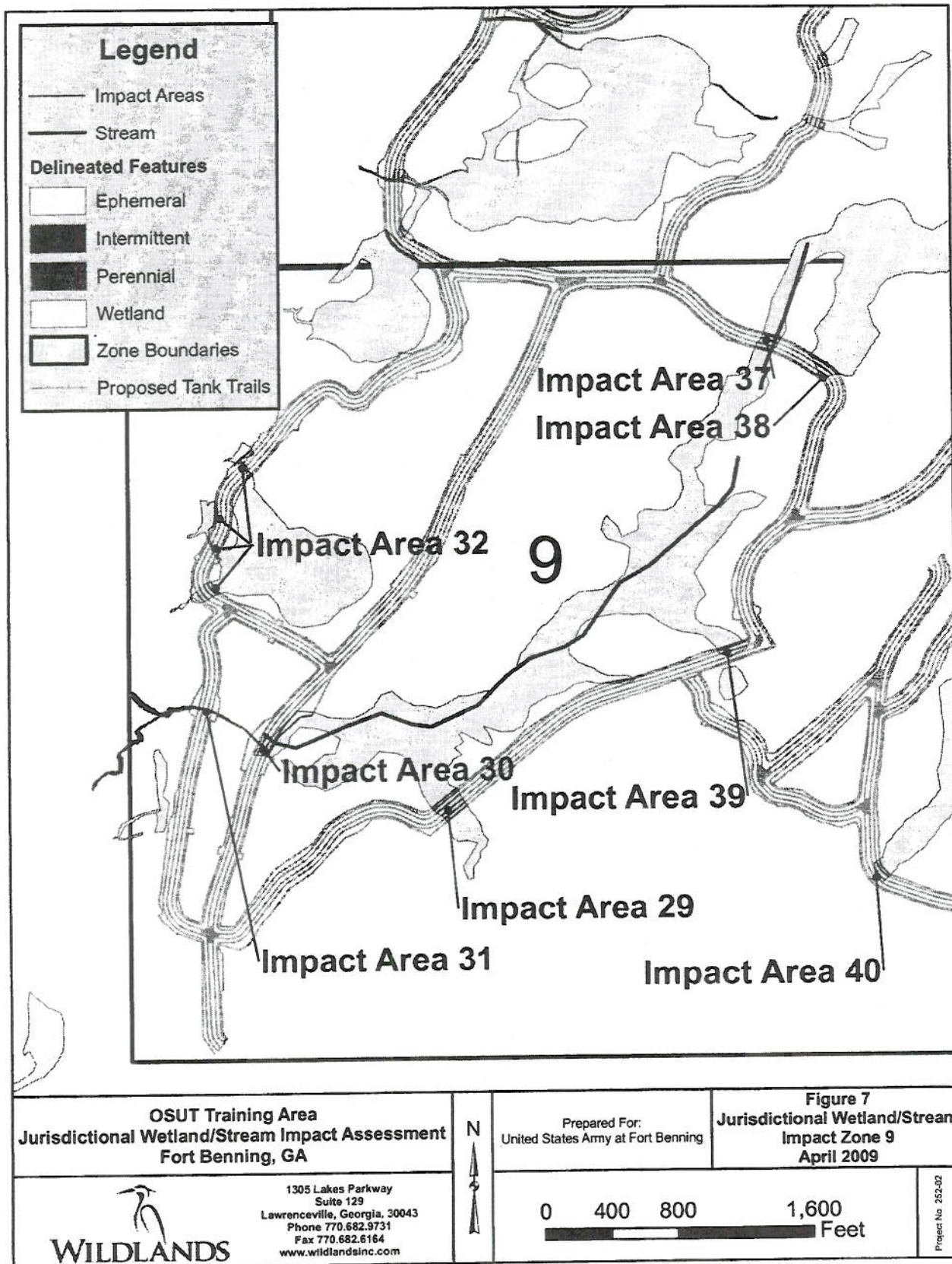
**Figure 6**  
Jurisdictional Wetland/Stream  
Impact Zone 8  
April 2009



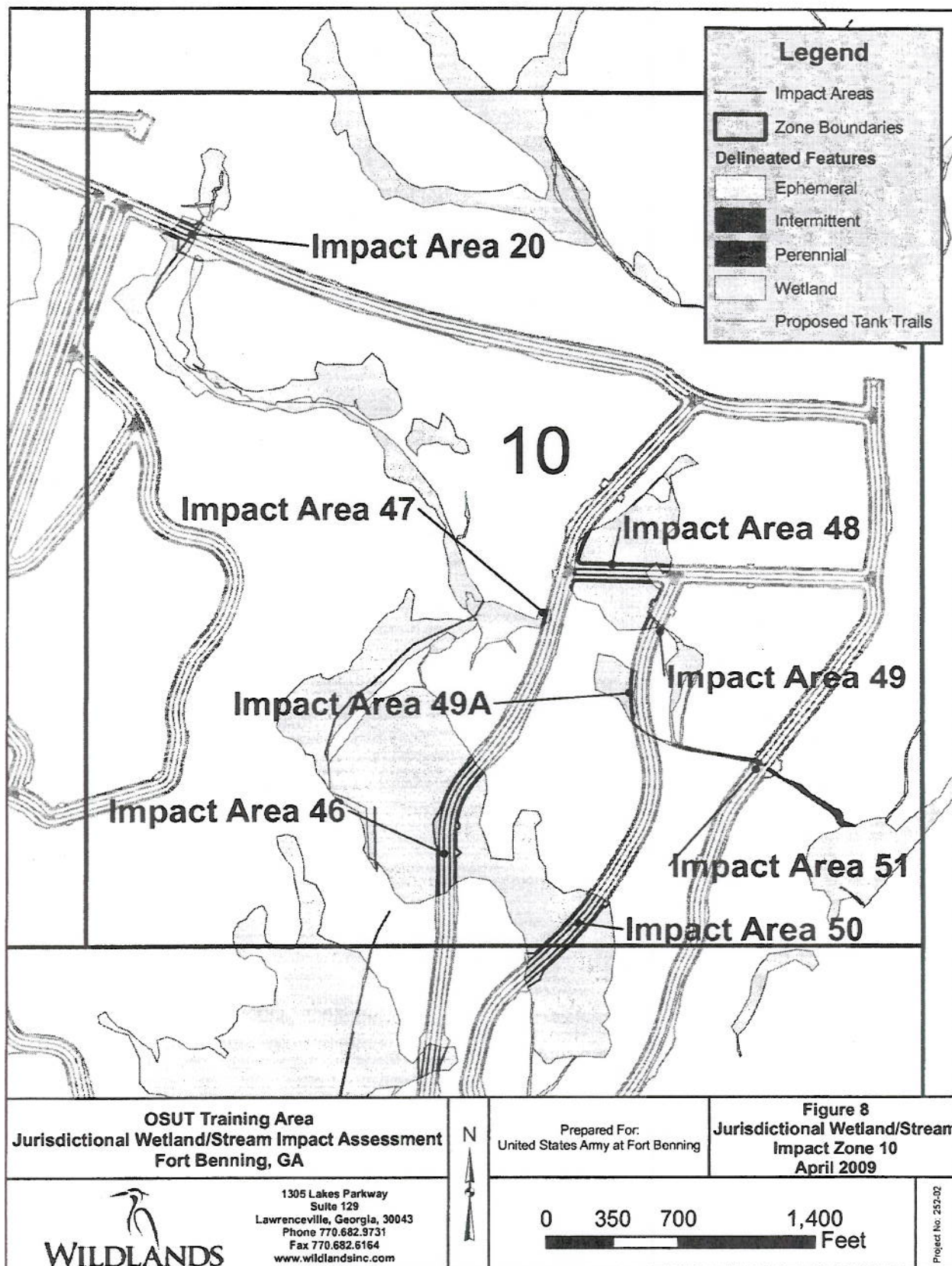
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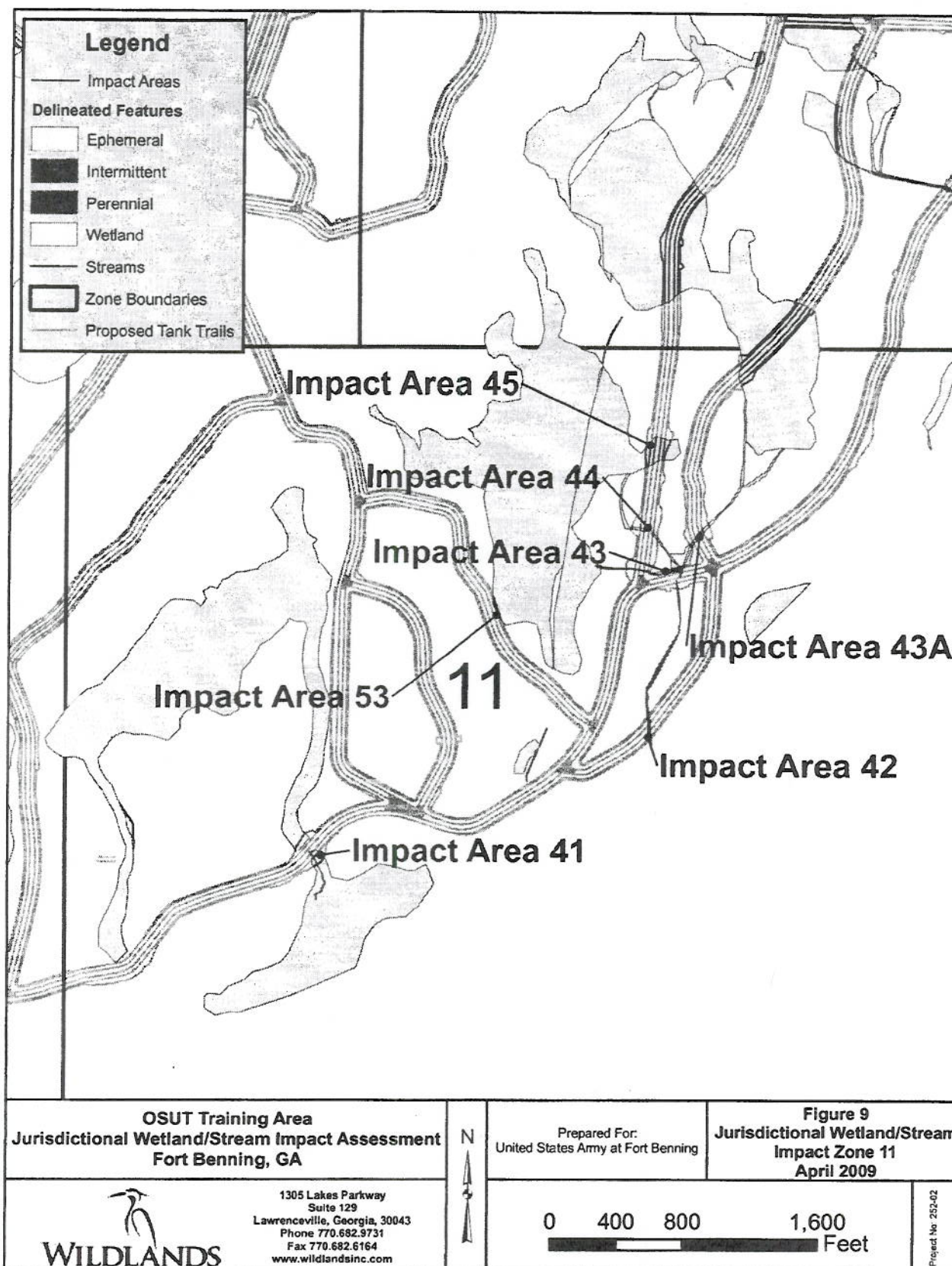
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Project No. 252-02



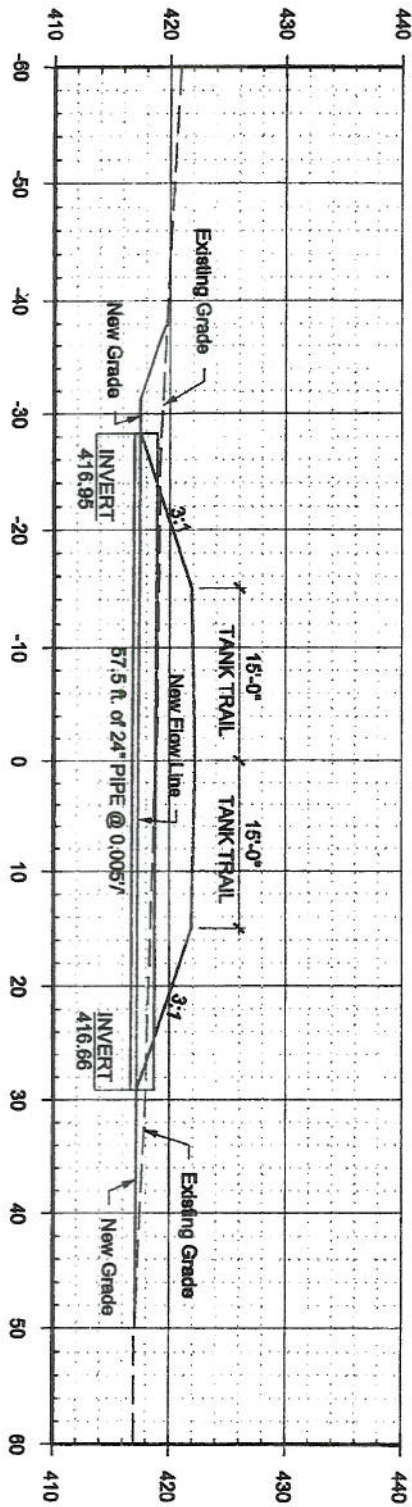








## TYPICAL CULVERT SECTION

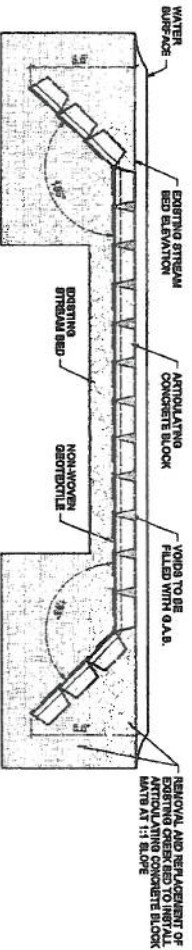


\* MINIMUM COVERAGE BETWEEN TOP OF PIPE AND THE TOP OF SUBGRADE/ BOTTOM OF AGGREGATE PAVEMENT SHALL BE 18".

\*\* PIPE INVERTS ARE BURED 20% OF PIPE DIAMETER OR 6", WHICH EVER IS GREATER.

# TYPICAL LOW WATER CROSSING

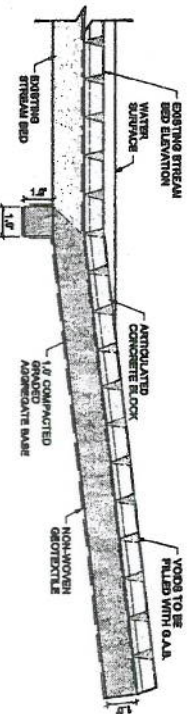
TYPICAL ARTICULATING CONCRETE BLOCK TANK TRAIL  
STREAM CROSS SECTION



## GENERAL NOTES

1. ARTICULATED CONCRETE BLOCK (A.C.B.) WILL BE 4000 PSI CONCRETE.
2. ARTICULATED CONCRETE BLOCK MATS WILL BE SET INTO THE EXISTING BED AT A 1:1 SLOPE UNLESS OTHERWISE NOTED.
3. ARTICULATED CONCRETE BLOCK MATS TOP SURFACES WILL MAINTAIN THE EXISTING STREAM BED ELEVATION.
4. Voids BETWEEN THE ARTICULATED CONCRETE BLOCKS WILL BE FILLED WITH G.A.B. UNTIL NATURAL BED LOAD FILLS THE VOIDS.

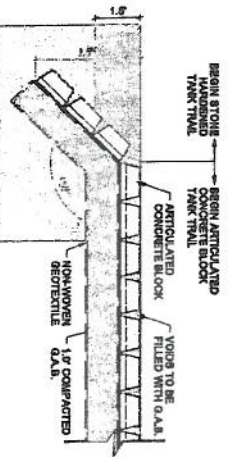
TYPICAL ARTICULATING CONCRETE BLOCK TANK TRAIL  
STREAM CROSS SECTION



## GENERAL NOTES

1. ARTICULATED CONCRETE BLOCK (A.C.B.) WILL BE 4000 PSI CONCRETE.
2. ALL VOIDS BETWEEN A.C.B.'S WILL BE FILLED WITH COMPACTED G.A.B. EXCEPT WHERE A.C.B. IS LOCATED IN THE STREAM FLOW.
3. GRADE SHALL BE SET SO THAT THE SURFACE OF THE INSTALLED A.C.B. IS THE SAME AS THE EXISTING STREAM BED.
4. Voids BETWEEN THE ARTICULATED CONCRETE BLOCKS WILL BE FILLED WITH G.A.B. UNTIL NATURAL BED LOAD FILLS THE VOIDS.

TYPICAL ARTICULATING CONCRETE BLOCK TANK TRAIL  
STREAM CROSS SECTION

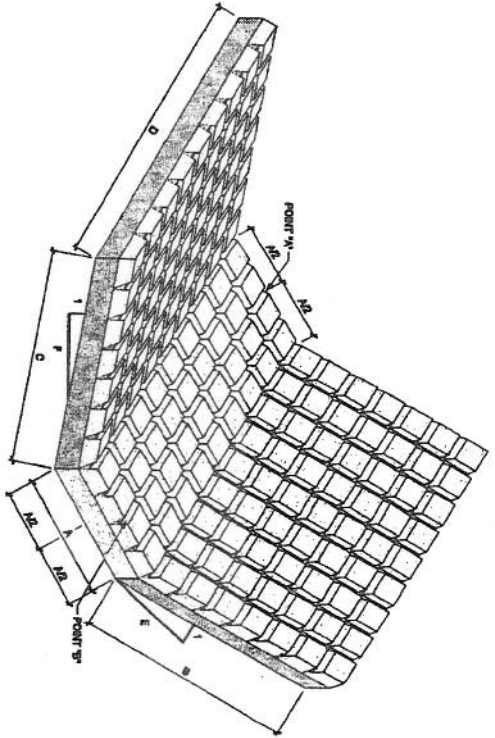


## GENERAL NOTES

1. ARTICULATED CONCRETE BLOCK (A.C.B.) WILL BE 4000 PSI CONCRETE.
2. ALL VOIDS BETWEEN A.C.B.'S WILL BE FILLED WITH COMPACTED G.A.B.
3. G.A.B. UNDER A.C.B. WILL BE ONE FOOT THICK AND COMPACTED AS GRATED IN PRECIPITATION WITH A LAYER OF GEOTEXTILE UNDERNEATH.
4. G.A.B. AT STONE WASHED TANK TRAIL WILL BE 1.5' THICK AS SHOWN IN DRAWING.



# TYPICAL LOW WATER CROSSING



STREAM CROSS SECTION  
NO SCALE

LWC	TRAIL STA.	DIB	NORTHING	POINT A		POINT B		A	B	C	D	E	F	WATER LEVEL
				EASTING	ELEV	NORTHING	EASTING	ELEV	ELEV	ELEV	ELEV	ELEV	ELEV	
LWC-1	TRAIL N 10+48.00	85.0	897,232.473	2,104,494.400	280.25	897,233.504	2,104,490.480	280.75	24	20	24	24	6.60	6.60
LWC-2	TRAIL N 11+44.87	87	899,010.000	2,104,500.544	282.25	899,010.500	2,104,500.817	282.75	24	12	18	24	6.73	6.73
LWC-3	TRAIL N 12+42.00	89	900,787.473	2,104,510.600	284.25	900,788.500	2,104,510.817	284.75	24	12	18	24	6.86	6.86
LWC-4	TRAIL N 13+39.13	91	902,564.947	2,104,520.656	286.25	902,565.973	2,104,520.817	286.75	24	12	18	24	6.99	6.99
LWC-5	TRAIL N 14+36.26	93	904,342.421	2,104,530.712	288.25	904,343.448	2,104,530.817	288.75	24	12	18	24	7.12	7.12
LWC-6	TRAIL N 15+33.39	95	906,119.895	2,104,540.768	290.25	906,120.921	2,104,540.817	290.75	24	12	18	24	7.25	7.25
LWC-7	TRAIL N 16+30.52	97	907,897.369	2,104,550.824	292.25	907,898.396	2,104,550.817	292.75	24	12	18	24	7.38	7.38
LWC-8	TRAIL N 17+27.65	99	909,674.843	2,104,560.880	294.25	909,675.870	2,104,560.817	294.75	24	12	18	24	7.51	7.51
LWC-9	TRAIL N 18+24.78	101	911,452.317	2,104,570.936	296.25	911,453.344	2,104,570.817	296.75	24	12	18	24	7.64	7.64
LWC-10	TRAIL N 19+21.91	103	913,229.791	2,104,580.992	298.25	913,230.818	2,104,580.817	298.75	24	12	18	24	7.77	7.77
LWC-11	TRAIL N 20+19.04	105	915,007.265	2,104,591.048	300.25	915,008.291	2,104,591.048	300.75	24	12	18	24	7.90	7.90
LWC-12	TRAIL N 21+16.17	107	916,784.739	2,104,601.104	302.25	916,785.766	2,104,601.104	302.75	24	12	18	24	8.03	8.03
LWC-13	TRAIL N 22+13.30	109	918,562.213	2,104,611.160	304.25	918,563.240	2,104,611.160	304.75	24	12	18	24	8.16	8.16
LWC-14	TRAIL N 23+10.43	111	920,339.687	2,104,621.216	306.25	920,340.713	2,104,621.216	306.75	24	12	18	24	8.29	8.29
LWC-15	TRAIL N 24+07.56	113	922,117.161	2,104,631.272	308.25	922,118.188	2,104,631.272	308.75	24	12	18	24	8.42	8.42
LWC-16	TRAIL N 25+04.69	115	923,894.635	2,104,641.328	310.25	923,895.662	2,104,641.328	310.75	24	12	18	24	8.55	8.55
LWC-17	TRAIL N 26+01.82	117	925,672.109	2,104,651.384	312.25	925,673.136	2,104,651.384	312.75	24	12	18	24	8.68	8.68
LWC-18	TRAIL N 27+00.00	119	927,449.583	2,104,661.440	314.25	927,450.610	2,104,661.440	314.75	24	12	18	24	8.81	8.81
LWC-19	TRAIL N 28+00.00	121	929,227.057	2,104,671.496	316.25	929,228.084	2,104,671.496	316.75	24	12	18	24	8.94	8.94
LWC-20	TRAIL N 29+00.00	123	931,004.531	2,104,681.552	318.25	931,005.558	2,104,681.552	318.75	24	12	18	24	9.07	9.07
LWC-21	TRAIL N 30+00.00	125	932,782.005	2,104,691.608	320.25	932,783.032	2,104,691.608	320.75	24	12	18	24	9.20	9.20
LWC-22	TRAIL N 31+00.00	127	934,559.479	2,104,701.664	322.25	934,560.506	2,104,701.664	322.75	24	12	18	24	9.33	9.33
LWC-23	TRAIL N 32+00.00	129	936,336.953	2,104,711.720	324.25	936,337.980	2,104,711.720	324.75	24	12	18	24	9.46	9.46
LWC-24	TRAIL N 33+00.00	131	938,114.427	2,104,721.776	326.25	938,115.454	2,104,721.776	326.75	24	12	18	24	9.59	9.59
LWC-25	TRAIL N 34+00.00	133	939,891.901	2,104,731.832	328.25	939,892.928	2,104,731.832	328.75	24	12	18	24	9.72	9.72
LWC-26	TRAIL N 35+00.00	135	941,669.375	2,104,741.888	330.25	941,670.402	2,104,741.888	330.75	24	12	18	24	9.85	9.85
LWC-27	TRAIL N 36+00.00	137	943,446.849	2,104,751.944	332.25	943,447.876	2,104,751.944	332.75	24	12	18	24	9.98	9.98
LWC-28	TRAIL N 37+00.00	139	945,224.323	2,104,761.999	334.25	945,225.350	2,104,761.999	334.75	24	12	18	24	10.11	10.11
LWC-29	TRAIL N 38+00.00	141	947,001.797	2,104,772.055	336.25	947,002.824	2,104,772.055	336.75	24	12	18	24	10.24	10.24
LWC-30	TRAIL N 39+00.00	143	948,779.271	2,104,782.111	338.25	948,780.298	2,104,782.111	338.75	24	12	18	24	10.37	10.37
LWC-31	TRAIL N 40+00.00	145	950,556.745	2,104,792.167	340.25	950,557.772	2,104,792.167	340.75	24	12	18	24	10.50	10.50